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ABSTRACT

The Student Orientations Survey (SOS) is a research inventory designed to assess students' expressed attitudes regarding curricular-instructional policies, their views on preferred modes of learning, student-faculty roles, etc. The SOS provides a means of profiling students' general orientations toward various philosophies, purposes, and processes related to a college education. Of the 10 scales of the questionnaire, five deal with the "preparatory" orientation to college, and five relate to a general "exploratory" orientation. The five preparatory are Achievement, Assignment Learning, Assessment, Affiliation, and Affirmation. The five exploratory are Inquiry, Independent Study, Interaction, Informal Association, and Involvement. Descriptions of these scales are given. Estimates of scale reliability were derived through the calculation of a coefficient alpha statistic. With one exception, the reliability estimates are in the .70 to .80 range, as based on responses of 2,468 undergraduates. Low to moderate negative correlations were found between the preparatory and exploratory scales. Several analyses related to the validity of the SOS scales are reported. The SOS has potential use in a variety of research modes, both in a descriptive and experimental context; some of these uses are discussed. Administering the SOS is described as to availability, scoring, costs, reporting format and optional analyses. Normative data for aid in the interpretation of the SOS results and for institutional/curriculum comparisons are provided in eight tables. An appendix provides scale descriptions, component items, and item-scale score correlations. (DB)

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Student Orientations Survey

Form D

PRELIMINARY MANUAL

TM 003 151

BARRY R. MORSTAIN
OFFICE OF ACADEMIC PLANNING AND EVALUATION
UNIVERSITY OF DELAWARE

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STUDENT ORIENTATIONS SURVEY

(Form D)

PRELIMINARY
MANUAL

Barry R. Morstain
Office of Academic Planning and Evaluation
University of Delaware

Newark, Delaware

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Introduction

The Student Orientations Survey (SOS) is a research inventory designed to assess students' expressed attitudes regarding curricular-instructional policies, their views on preferred modes of learning, student-faculty roles, and so on. The SOS, in effect, provides a means of profiling students' general orientations toward various philosophies, purposes, and processes related to a college education.

The need for more systematic and empirical analysis of students' educational attitudes is well justified. Even to casual observers of the higher education scene, it is apparent that our colleges and universities enroll individuals with diverse backgrounds, interests, and abilities. As Cross (1971) indicates, institutions are faced with an increasingly heterogeneous student population. What are the interests and learning orientations of our students? What are their attitudes about the curricular-instructional patterns which affect them? What kind of educational processes do they desire? These have been and will continue to be important questions for faculty and administrators at institutions of higher learning.

Most people would agree that colleges and universities should be responsive to the students they serve. Yet in the golden era of higher education, when enrollments were burgeoning and our financial resources were strong, the question of responsiveness could be couched in rhetorical and subjective terms. However, if students (and parents) are going to be asked to shoulder more of the true costs of education -- given our current "retreat from

affluence" -- being in touch with our student clientele will assume more substantive priority.

This is not to say that little has been done in the area of research on college students. To the contrary, Feldman and Newcomb (1969) have reviewed and compiled a massive number of research studies which have been undertaken over the last four decades. Mechanisms do exist for determining general characteristics and attitudes of students, for example, the American Council on Education's Survey of Entering Freshmen and the College Student Questionnaire (Peterson, 1965). Research on student perceptions of the college environment performed by Pace (1963) and Stern (1963), personality characteristic studies (Heist and Yonge, 1968), student-environment congruence studies by Pervin (1967) are also valuable in their own right. However, these types of research studies do not necessarily involve consideration of the implications of curricular-instructional situations. For the most part, the research inventories employed do not deal directly with students' attitudes regarding educational processes and policies. Hence, this latter concern was of primary importance in delineating the bases as well as the specific items which comprise the SOS.

In addition, a general concern with gaining a better understanding of the patterns and parameters of student development during college has also influenced the conceptualization of this research inventory. In this regard, a role orientation perspective is the underlying framework of the SOS. Many writers believe that the roles which students play in their own education are a major factor in the developmental process during college. What relationships exist between such student role orientations, educational attitudes and patterns of growth in the cognitive and non-cognitive domains?

In many respects, role orientations and student development patterns can be related to White's (1952) concept of a "sense of competence". This can be viewed as a goal of education, that is, helping a student develop the feeling that he can have an effect on his "environment", or that he can have some say as to the nature of his academic experiences by taking an active role in his own education.

From an institutional perspective, Chickering (1969) believes that the fostering of characteristics such as independence and initiative in students is inextricably linked to a college or university's educational practices. Hence, if we accept the premise that one's education is inherently a personal and unique phenomenon, it has been argued that a college or university should assist students in assuming more responsibility for developing the kind of educational experiences which are most appropriate to their particular goals, needs, and interests. In this regard, an institution's academic programs and policies are best considered with reference to the characteristics of its students. Furthermore, examining the changes in students' educational attitudes and orientations may give some indication of the "impact" of a college or university's curricular-instructional policies and practices on student development.

The SOS -- General Notes

The Student Orientations Survey is a ten-scale questionnaire designed to assess the expressed attitudes of students toward various philosophies, processes and purposes of a college education. There are 8 items per scale, and each item has four response categories, ranging from "not at all like my attitude" to "closely reflects my attitude."

In its initial development, the SOS (Gray and Morstain, 1970) consisted of 150 items undifferentiated as to type or scale. Pretesting of items and initial factor analyses (principal components) were performed on data gathered from a random sample of entering freshmen at the University of California at Berkeley during the summer of 1970 (N=225). Subsequent factor analytic studies based on data collected at eight dissimilar institutions (total N=4279)[1] have indicated that the expressed attitudes of responding students tend to cluster around five major dimensions or areas. These five areas are as follows:

1. Purpose (expressed motivation for attending college)
2. Process (expressed preferences for different modes of learning)
3. Power (expressed attitudes toward authority, especially faculty)
4. Peer Relations (expressed preference for different modes of association)
5. Public Position (expressed attitudes toward the community and society)

Each of these areas has two eight-item scales which relate to the underlying dimension. In sum, the five areas and ten SOS scales are:

STUDENT ORIENTATIONS TO COLLEGE

SOS SCALES	AREAS OF ORIENTATION	SOS SCALES
Achievement	1. PURPOSE	Inquiry
Assignment Learning	2. PROCESS	Indep. Study
Assessment	3. POWER	Interaction
Affiliation	4. PEER RELATIONS	Informal Association
Affirmation	5. PUBLIC POSITION	Involvement

[1] University of California at Davis, University of Hawaii, St. Olaf's College, Muhlenberg College, Concordia College, University of Delaware, Harcum Junior College, College of Steubenville.

Given the pattern of SOS scale intercorrelations (see the section on reliability), five scales clustered together in what has been interpreted as a general "Preparatory" orientation to college, and another set of five scales has been interpreted as relating to a general "Exploratory" orientation to college. It appears that while college is most highly valued by some for its preparatory functions -- in terms of acquiring useful knowledge, skills, vocational, and social roles, it is valued most highly by others for its exploratory possibilities, i.e., for the opportunities it affords for exploring one's interests, ideas, and personal identity. These general orientations become more apparent when one examines the content and description of the ten scales.

Scale Descriptions

The names, descriptions of, and sample items from the five scales which deal with the "Preparatory" orientation are:[2]

Achievement (Ach.)

This scale measures the degree to which a student is oriented toward (1) the achievement of a priori goals (usually some career in particular or success in general), (2) the acquisition of specific skills or credentials, (3) the satisfaction of receiving external rewards. The student who identifies with the contents of these items has a practical, goal-oriented outlook and tends to gauge various aspects of the college experience in terms of their future usefulness.

-More college courses should be geared to the kind of job a student wants after college.

-Learning to make a good living is sufficient reason for going to college.

Assignment Learning (A.L.)

The student who agrees with a high proportion of the items on this scale reports that he learns best by meeting specific, clear-cut formal requirements. His mode of learning is linear, i.e., he likes to master specified blocks or units of knowledge sequentially.

-An academic program is best organized into formal courses, with regular class assignments and examinations.

-Lectures are the best way to learn because they pinpoint what is important for students to know.

[2]The eight items for each SOS scale, along with item-scale correlations, are presented in Appendix A.

Assessment (As.)
An evaluation by those in authority seems to be quite important to the student who scores high on this scale. Grades and examinations are valued by this student because they provide not only some measure of his abilities but some incentive for using those abilities.

-Teachers are the only ones who should critically judge a student's work.

-If there weren't any pressure on me to get good grades, I might slack off in my academic courses.

Affiliation (Affl.)
The student who prefers the manner of relating to peers expressed in items on this scale enjoys belonging to organized extracurricular groups. He appears to value the assurance of friendships such affiliation provides. Furthermore, he stresses the importance of maintaining strong institutional loyalty and support.

-Fraternities, sororities, and other social groups are an important part of college life.

-Active alumni generally render a great service to a college or university.

Affirmation (Affr.)
The student who agrees with items on this scale appears to affirm the values of a peaceful and orderly society. He tends to support public officials in their commitment to solve civic problems and feels "the majority can be counted on to make the right decisions." He would probably counsel care and caution in the area of social change.

-I think all the talk about the "problems of our society" is blown out of proportion.

-The society that tries to change too fast is headed for real trouble.

The names, descriptions of, and sample items from the five SOS scales which deal with the "Exploratory" orientation are:

Inquiry (Inq.)
"Learning is its own reward", in essence, is the expressed motivation of the student who responds positively to most of the items on this scale. He concurs with statements which stress the value of insight, the perception of relationships, and knowing how to learn. He expresses curiosity about many things and appears to enjoy the satisfaction of inquiry whether or not it brings with it any other reward.

-I like to study a given theory or new "discovery" and consider what implications it may have for the future.

-I would like to study the relationships between several fields rather than learning many facts about just one area.

Independent Study (I.S.)
The items on this scale help to identify the student who works best on his own. He prefers informal, unstructured courses in which he can set his own goals and standards and pursue his own interests. He appears to place a high value on freedom and independence.

-Instead of taking a regular course, I would rather have an individually tailored "learning contract" with a faculty member.

-The teacher who wants students to do their best should allow them to pursue their own interests.

Interaction (Inter.)
An egalitarian attitude toward faculty members characterizes the student with a high score on this scale. This individual sees students as fully competent to share educational decision-making with faculty. In this connection he expresses the belief that students should participate with faculty in planning courses and academic programs.

-Students should be involved with faculty in establishing degree and graduation requirements.

-Students should be encouraged to propose and develop courses and receive academic credit for them.

Informal Association (I.A.)
Spontaneity marks the pattern of peer-relationships expressed by the student who responds favorably to this cluster of items. He expresses little need for affiliation with organized groups or for participation in formal, well-planned events. His association with fellow-students also tends to be unstructured.

-I would rather spend an evening with a friend or two than attend a planned social event.

-I seldom attend the meetings of campus organizations.

Involvement (Inv.)
A strong interest in social and political affairs characterizes the student who has a high score on this scale. He sees students as having a rightful place in dealing with the public problems of our time. Further, he expresses a concern for the welfare of others and states his readiness to take a stand on public issues.

-College students should be meaningfully involved in correcting the injustices of our society.

-During college I expect to participate in some form of volunteer service.

Reliability

Estimates of scale reliability were derived through the calculation of a coefficient alpha statistic -- a measure of internal consistency (Nunnally, 1967). Considering that there are only eight items per scale, the reliability estimates are fairly high and with one exception, are in the .70 to .80 range.*

SOS Scale	Coefficient Alpha
Achievement	.71
Assignment Learning	.77
Assessment	.74
Affiliation	.80
Affirmation	.75
Inquiry	.76
Independent Study	.81
Interaction	.84
Informal Association	.64
Involvement	.77

*Based on responses of University of Delaware undergraduates (N=2468)

SOS Scale Intercorrelations

Pearson product-moment intercorrelations of the SOS scales were calculated using data from University of Delaware undergraduates (N=2468). These scale intercorrelations are presented in Table 1.

Table 1

Intercorrelations of SOS Scale Scores (Form D)

	Ach.	A.L.	As.	Affl.	Affr.	Inq.	I.S.	Inter.	I.A.	Inv.
Achievement	-	.58	.43	.30	.46	-.27	-.30	-.28	-.29	-.29
Assignment Learn.	-	-	.54	.28	.47	-.27	-.50	-.45	-.22	-.31
Assessment	-	-	-	.24	.43	-.22	-.49	-.53	-.21	-.28
Affiliation	-	-	-	-	.43	-.10	-.14	-.15	-.55	-.01
Affirmation	--	-	-	-	-	-.23	-.29	-.38	-.30	-.45
Inquiry	-	-	-	-	-	-	.56	.26	.18	.42
Independent Study	-	-	-	-	-	-	-	.54	.25	.38
Interaction	-	-	-	-	-	-	-	-	.21	.41
Informal Assoc.	-	-	-	-	-	-	-	-	-	.01
Involvement	-	-	-	-	-	-	-	-	-	-

Data in Table 1 show that there are positive correlations among two sets of scales (five SOS scales in each set). Assignment Learning, Achievement, Assessment, Affiliation, and Affirmation have moderate correlation with each other, as does the other set of scales: Inquiry, Independent Study, Interaction, Informal Association and Involvement. Also, the low-to-moderate negative correlations found between the Preparatory and Exploratory scales tends to indicate that various scales are not simply polar opposites of each other. These intercorrelations give support to the general interpretation of a Preparatory and Exploratory clustering of scales/attitudes described previously.

Validity

Several analyses related to the validity of the SOS scales will be reported here. One aspect involves determining the degree to which the SOS scale scores and profiles actually differentiate between students in various curricula and degree programs at different types of institutions. Another general consideration is to determine the "concurrent validity" of the SOS. Results from the latter analysis will be presented first.

Correlations: SOS and Personality Inventory

Based on data from 410 freshmen at three institutions (University of California at Davis, St. Olaf's College, University of Hawaii), students' SOS scale scores were correlated with their scores on a standardized personality measure, the Omnibus Personality Inventory (OPI). The OPI was administered to the students at the same time they completed the SOS. The intercorrelations of scales from these two inventories (Pearson product-moment coefficients) are presented in Table 2.

Overall, there is a pattern of negative correlation between the Preparatory scales of the SOS and four primary "Intellectural Disposition" scales of the OPI (namely, Thinking Introversion, Theoretical Orientation, Estheticism, and Complexity). There are, however, significant positive correlations between the Exploratory scales of the SOS and the OPI scales mentioned above. That is, individuals who have high scores on the Exploratory SOS scales tend to have high scores on the four OPI scales which assess a "liking for reflective thought, preference for dealing with theoretical concerns, interest in esthetic/artistic matters, and expression of tolerance for ambiguity and uncertainty."[3]

[3]For a full description of the OPI scales, see Heist and Yonge (1968).

Table 2

INTERCORRELATIONS OF SCALES FROM OMNIBUS PERSONALITY INVENTORY (OPI) AND STUDENT ORIENTATIONS SURVEY (SOS)[1]

	OPI Scales													
SOS Scale	Thinking Introv.	Theoretical Orient.	Estheticism	Complexity	Autonomy	Religious Orient.	Social Extrov.	Impulse Expression	Anxiety Level	Personal Integ.	Altruism	Practical Outlook	Masc-Femin.	Response Bias
Preparatory														
Achievement	-.39	-.25	-.29	-.50	-.50	-.12	-.02	-.14	-.09	-.16	-.34	.58	.15	-.07
Assignmt Lrng.	-.43	-.28	-.29	-.57	-.56	-.27	-.09	-.20	-.15	-.16	-.35	.67	.14	-.07
Assessment	-.33	-.18	-.24	-.42	-.45	-.19	-.12	-.20	-.10	-.10	-.31	.49	.15	-.04
Affiliation	-.24	-.14	-.19	-.39	-.44	-.31	.20	-.16	-.05	-.11	-.01	.44	.06	-.01
Affirmation	-.45	-.28	-.33	-.57	-.64	-.28	-.07	-.28	-.06	-.09	-.33	.65	.13	-.04
Exploratory														
Inquiry	.49	.34	.38	.33	.14	.01	.14	.17	.00	.07	.26	-.28	-.14	.16
Indep. Study	.40	.31	.29	.50	.33	.27	.08	.34	.04	.02	.12	-.38	-.09	.00
Interaction	.23	.14	.21	.39	.34	.25	.11	.26	-.05	-.05	.16	-.36	-.13	-.11
Informal Ass.	.29	.23	.23	.44	.50	.32	-.15	.20	.03	.06	.09	-.47	-.01	-.04
Involvement	.35	.17	.27	.27	.32	.10	.19	.14	.10	.05	.39	-.33	-.19	.07

[1]Based on spring 1971 testing of 410 freshmen (Univ. of Hawaii, N=150; Univ. of Calif., Davis, N=184; St. Olaf's College, N=76)

A similar pattern holds when the students' SOS scale scores were correlated with their scores on what are generally known as the "non-authoritarian" scales of the OPI (Autonomy, Religious Orientation). Individuals who have high scores on the Exploratory SOS scales tend to have high scores on these measures of openness and non-authoritarianism, and the reverse is true for individuals who have high scores on the Preparatory scales of the SOS.

For the remaining scales of the OPI (the "social-emotional" scales), again the same general pattern applies, although the strength of the OPI-SOS correlations appear to be somewhat lower than those reported for the previously mentioned scales. The OPI scale "Practical Outlook" is an exception, however, as substantial positive and negative correlations were obtained with the Preparatory and Exploratory SOS scales respectively.

In sum, the above analyses -- in a concurrent validity mode -- tend to indicate that the educational attitudes of students vis a vis curricular/instructional policies and procedures vary directly in relation to their general personality orientations as evidenced through interpretation of the OPI.

Student Orientations and Clark-Trow Typology Preferences

Based on a survey of approximately 13,000 freshmen at 23 colleges and universities, Peterson (1965) found that students who identified with one of four student "subcultures" (Trow, 1962) had widely varying attitudes, educational plans, and career interests. With respect to educational attitudes, for example, 60% of the students who identified with the Nonconformist philosophy felt that "students should be free to devise their own curriculum", while only 40 to 44% of the students who identified with the Collegiate, Vocational, and Academic philosophies concurred with this view. Also, students who preferred the Nonconformist philosophy expressed

somewhat more desire for "independent work" than did students who identified with the other three typology statements.

As the SOS also assesses a variety of attitudes and educational orientations (through its ten scales), other evidence of the validity of this inventory could be documented if the SOS profiles of students who identified with various Clark-Trow typologies tended to confirm Peterson's previous findings. In the spring of 1971, a sample of freshmen at two institutions[4] completed the SOS and also responded to the Clark-Trow subculture question. Data from this analysis are presented in Figure 1.

As was hypothesized, freshmen who identified with the Non-conformist philosophy had the highest standard score means on all five Exploratory scales of the SOS, and this finding is consonant with Peterson's (1965) analysis of student responses to selected items in the College Student Questionnaire. Students who preferred the Academic, Collegiate, and Vocational typology statements had progressively lower mean scores on the Exploratory scales.

On the Preparatory scales of the SOS, students who identified with the Academic and Nonconformist philosophies had similar scores below the normative mean on the Assessment, Affiliation, and Affirmation scales. Students who preferred the Non-conformist philosophy, compared with those who identified with the Academic description, had substantially lower scores on the Achievement and Assignment Learning dimensions. Students who preferred the Vocational and Collegiate philosophies had relatively higher mean scores than did the other students on the Preparatory scales, and as expected, students who endorsed the Collegiate philosophy had the highest score on the Affiliation scale. An analysis of variance based on SOS mean scores (see Norm section of Manual) confirmed

[4]University of California at Davis(N=184) and St. Olaf's College (N=76).

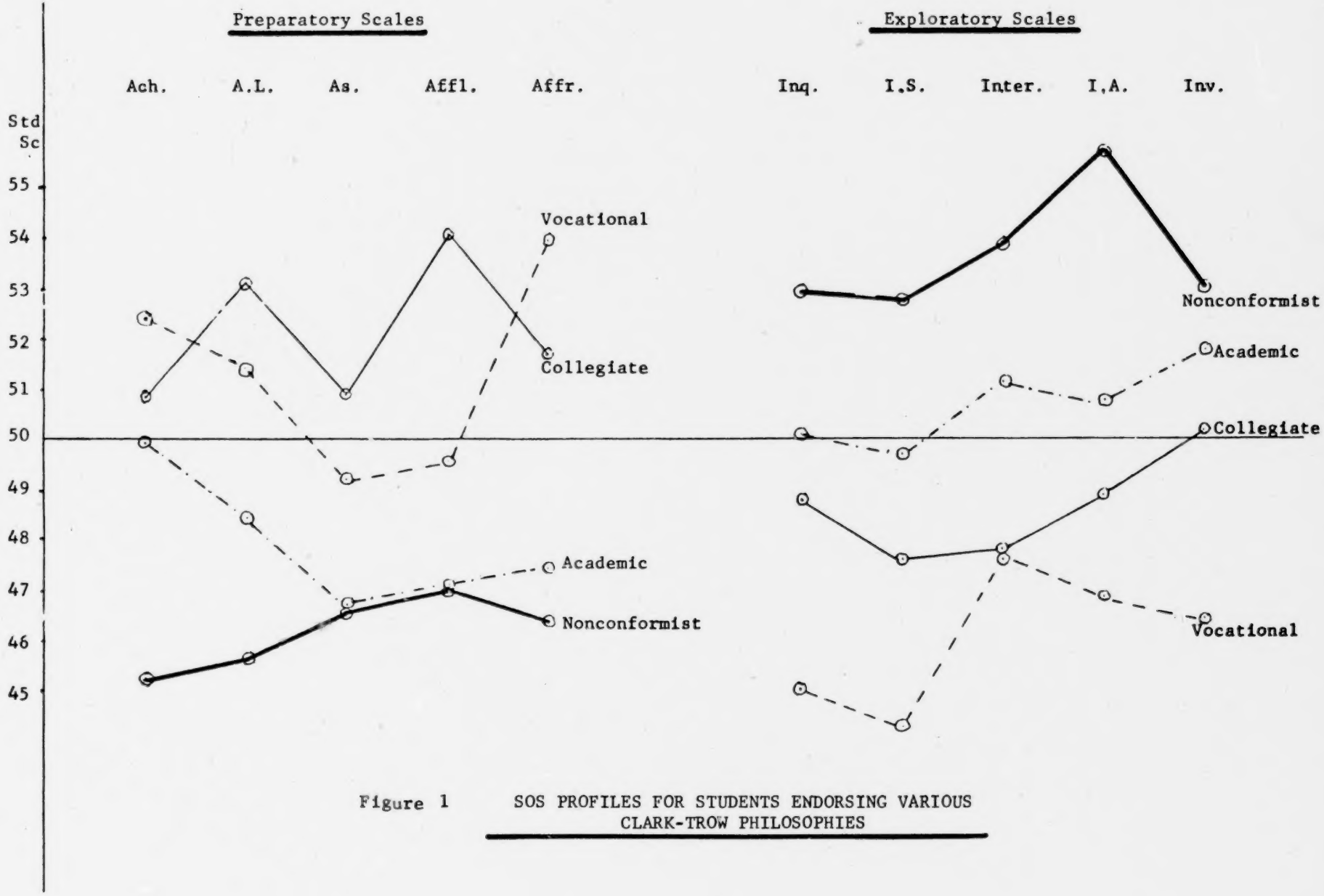

Figure 1 SOS PROFILES FOR STUDENTS ENDORSING VARIOUS CLARK-TROW PHILOSOPHIES

that there were statistically significant differences in the educational attitudes and orientations of student who endorsed different Clark-Trow philosophies.

Student Orientations and Scholastic Aptitude

Recent research by C. Pemberton (1973) has indicated that students with different patterns of scholastic aptitude (as measured by SAT scores) have somewhat different educational attitudes and orientations. Undergraduates at the University of Delaware for whom SOS and SAT information was available (N=2220) were classified into one of three groups: students whose SAT-Math scores were one standard deviation or more above their SAT-Verbal scores, (N=389), students who SAT-M and V scores did not differ by more than one standard deviation (N=1603) and students whose SAT-V scores were one standard deviation or more above their SAT-M scores (N=228). SOS profiles for these students are presented in Figure 2.

Students with high verbal-low math SAT scores had the highest scores on the five Exploratory scales. Students with high math-low verbal SAT scores had the lowest scores on these same scales, with the remaining group (M=V) having scores around the University of Delaware mean on the Exploratory scales.

With respect to the Preparatory scales, the pattern of SOS scores is reversed -- students with high verbal-low math scores have relatively lower scores on these attitudinal dimensions. However, there is somewhat less variability in the range of absolute SOS mean scores on this set of five scales as compared with the range of scores on the Exploratory scales.

In sum, those students with higher SAT Verbal than Math scores were more "exploratory" and less "preparatory" in their general orientation to the philosophies, purposes, and processes of a

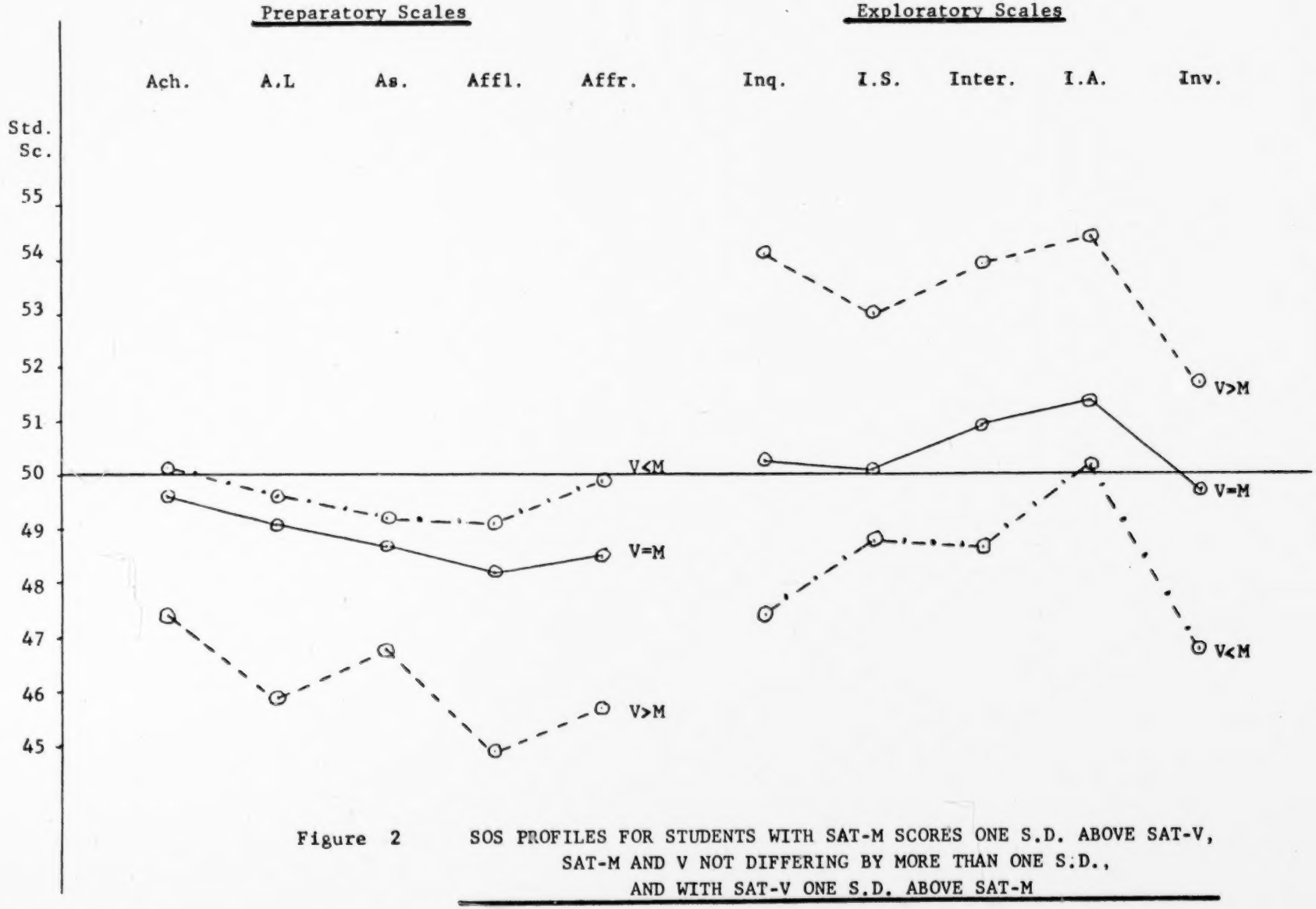

Figure 2 SOS PROFILES FOR STUDENTS WITH SAT-M SCORES ONE S.D. ABOVE SAT-V, SAT-M AND V NOT DIFFERING BY MORE THAN ONE S.D., AND WITH SAT-V ONE S.D. ABOVE SAT-M

college education. The reverse was noted for students with higher SAT Math than Verbal scores. Pemberton's findings tend to support personality characteristics research reported by Himmelweit (1945), Munroe (1946), Pemberton (1951), and Ferguson and Maccoby (1966) in which individuals in a high verbal ability group appeared to be more inwardly directed, and individuals in a high mathematical ability group were more pragmatic in their general orientation. In many respects, these earlier findings are consistent with an interpretation of the Preparatory and Exploratory SOS profiles of students classified by their pattern of SAT V-M scores.

Other Evidence of Validity

One of the more important kinds of evidence of the validity of a research inventory is the degree to which the inventory can differentiate between students in various institutional and/or curricular settings. This aspect of validity also has a bearing on how a research instrument can be used in the field of higher education. If one is able to assess more accurately the educational attitudes of students in different institutional settings or curricular areas, the design and re-design of various academic programs could become more empirically based on considerations of educational policy and "process."

Certain data recently collected attempt to document the "differentiating" capability of the SOS. In this regard, SOS profiles for students in five different institutions are presented in standard score form in Figure 3.

From this institutional analysis, the SOS means on the Preparatory scales show somewhat more variability than do the mean scores on the Exploratory scales. Students at Steubenville College (N=149), Harcum Junior College (N=92), and Concordia College (N=718), all private institutions, have higher mean scores on the

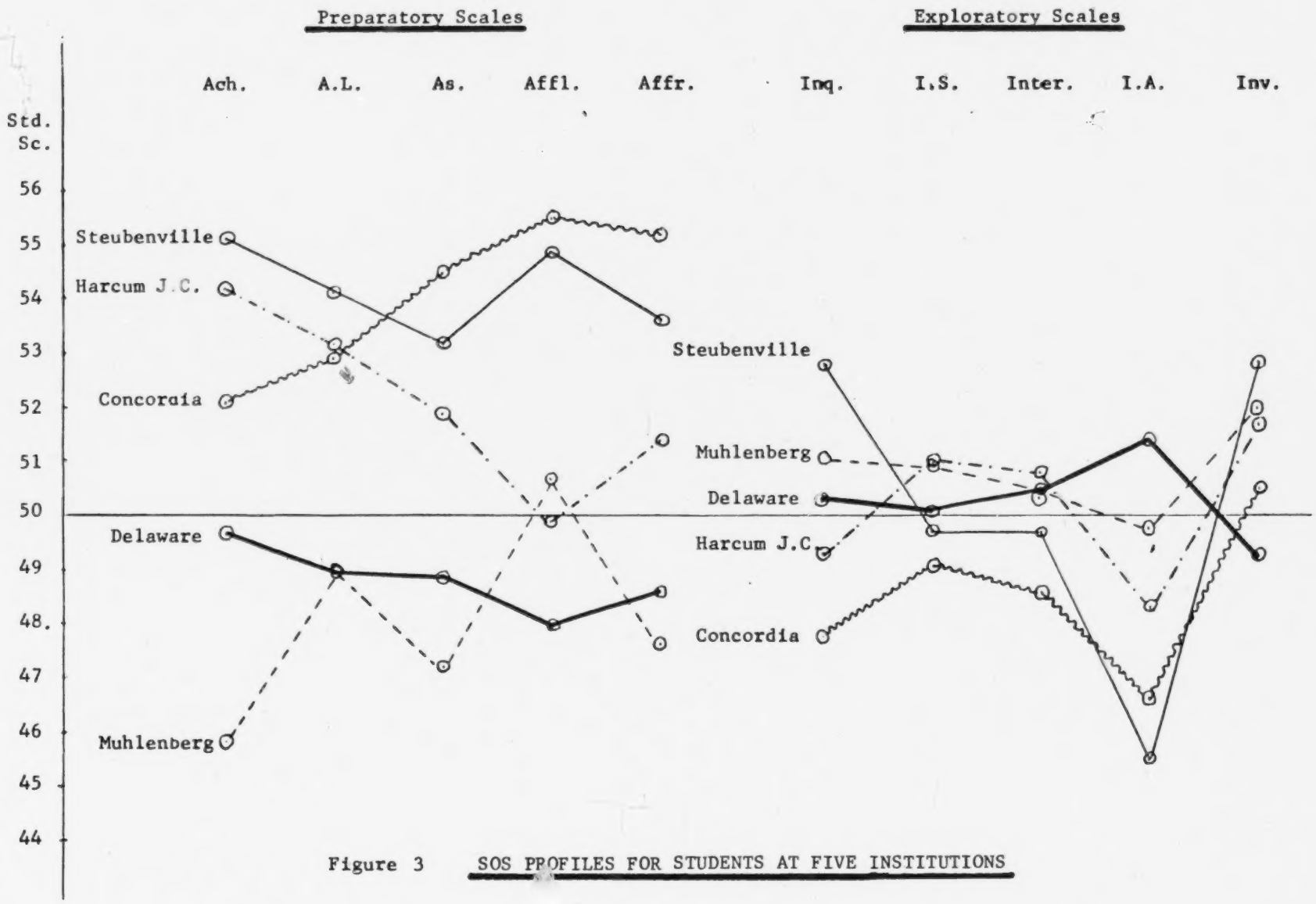

Figure 3 SOS PROFILES FOR STUDENTS AT FIVE INSTITUTIONS

Preparatory scales of the S.O.S. than do students at Muhlenberg College (N=425) and the University of Delaware (N=2446). With one exception (Muhlenberg's score on Affiliation), these latter two institutions have scores on all Preparatory scales below the five-institution mean.

For the Exploratory scales, there is somewhat less variability in mean scores on the Independent Study, Interaction, and Involvement scales.[5] Across the five institutions, however, there is more noticeable variation in mean scores on the Inquiry and Informal Association scales.

It was also hypothesized that the SOS profiles for students in different curricular areas would show as much if not more variability than inter-institutional comparisons. As there were fairly large Ns in five distinguishable curricula at the University of Delaware, a curricular program analysis was performed with data from that institution. SOS profiles for students majoring in the following areas are presented in Figure 4: social sciences (N=433), natural sciences (N=317), humanities and fine arts (N=317), predominantly male professional curricula -- Engineering, Agriculture, Business (N=628), and predominantly female professional curricula -- Nursing, Home Economics, and Education (N=723).

Students in the social sciences and humanities had relatively lower mean scores on all Preparatory scales than students in the other three curricular areas. The scores for students in the natural sciences were slightly below the normative mean score of 50 on these scales, and were midway between the SOS scores for students in male professional curricula and those students majoring in social sciences and humanities.

[5] On all but the Independent Study scale, F values from analysis of variance tests were significant at the .01 level. (See Norm section of the Manual)

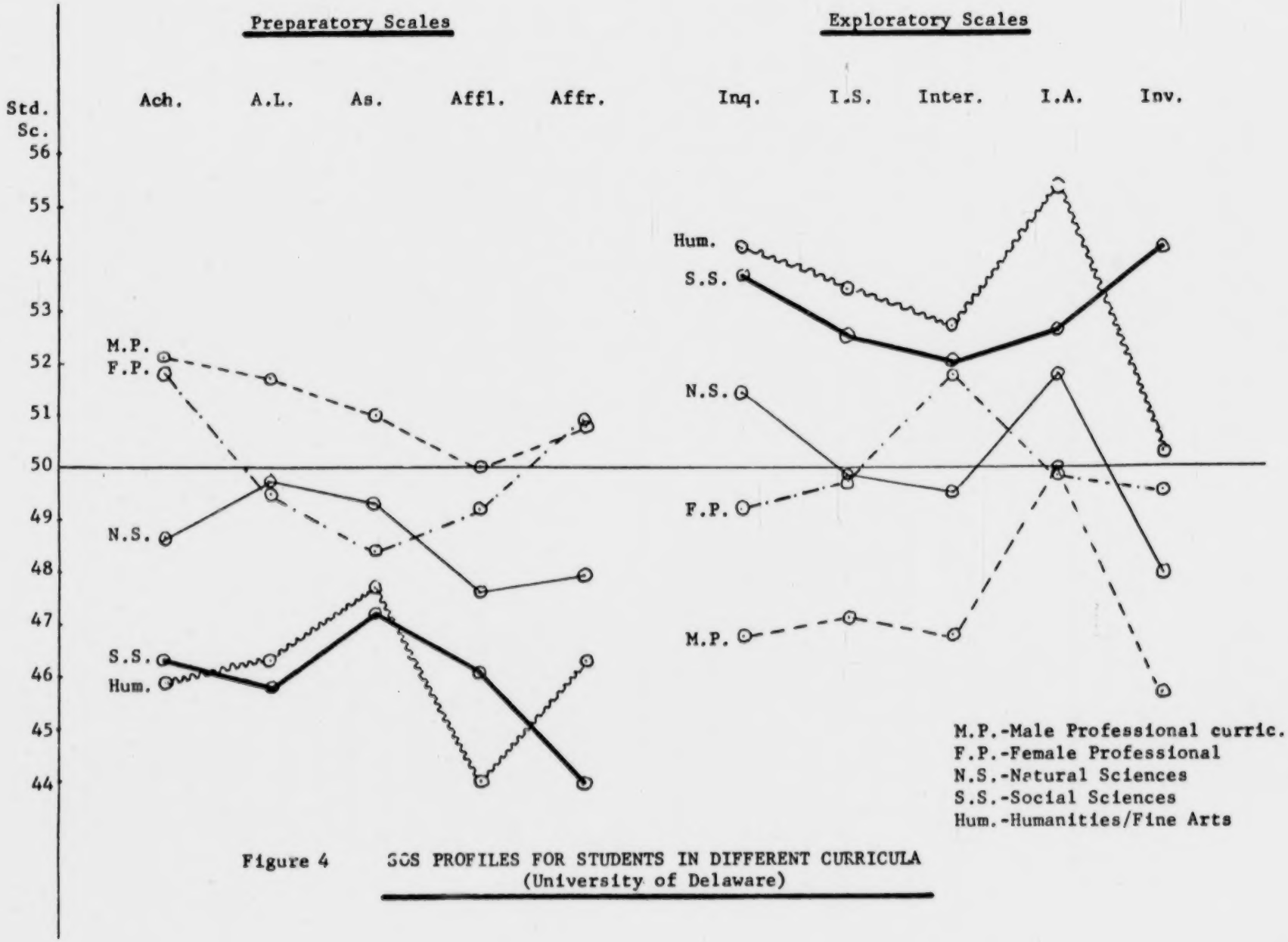

Figure 4 SOS PROFILES FOR STUDENTS IN DIFFERENT CURRICULA
(University of Delaware)

Overall, there was more curriculum group variation in mean scores on the Exploratory scales as compared to the inter-institutional profiles previously presented. Humanities and social science majors expressed relatively more interest in having a participatory role with faculty in educational decision-making (Interaction) had more desire in developing "learning contracts" and other independent study or off-campus experiences (Indep. Study), and tended to view learning as its own reward, whether or not this learning had a practical or vocational pay-off (Inquiry). Humanities majors also had the highest mean score on the Informal Association scale (a desire for unstructured, spontaneous peer-relationships) while social science majors, as might be expected, had the highest mean score on the Involvement scale (interest in socio-political issues). On the other hand, students, in the male professional curricula had the lowest mean scores on all five Exploratory scales.[6]

In a related domain, previous research on students who "self-select" themselves into experimental programs has indicated that these students' general characteristics and personality orientations are substantially different from those of their peers in the regular curriculum (Heist and Biloursky, 1971; Suzcek and a Alfert, 1970). It was hypothesized that differences in educational attitudes and orientations would also be evident for students in these two differing educational settings. SOS profiles for freshmen in traditional liberal arts curricula and freshmen who voluntarily participated in experimental programs at the University of Hawaii, University of California at Davis, and St. Olaf's College are presented in Figure 5 (total N=410).

At each institution, the freshmen in the experimental program scored significantly higher on the Exploratory scales of the SOS than did their peers in the regular curriculum, and significantly

[6] F values from analysis of variance tests on all scales were significant at the .01 level. (See Norm section of the Manual)

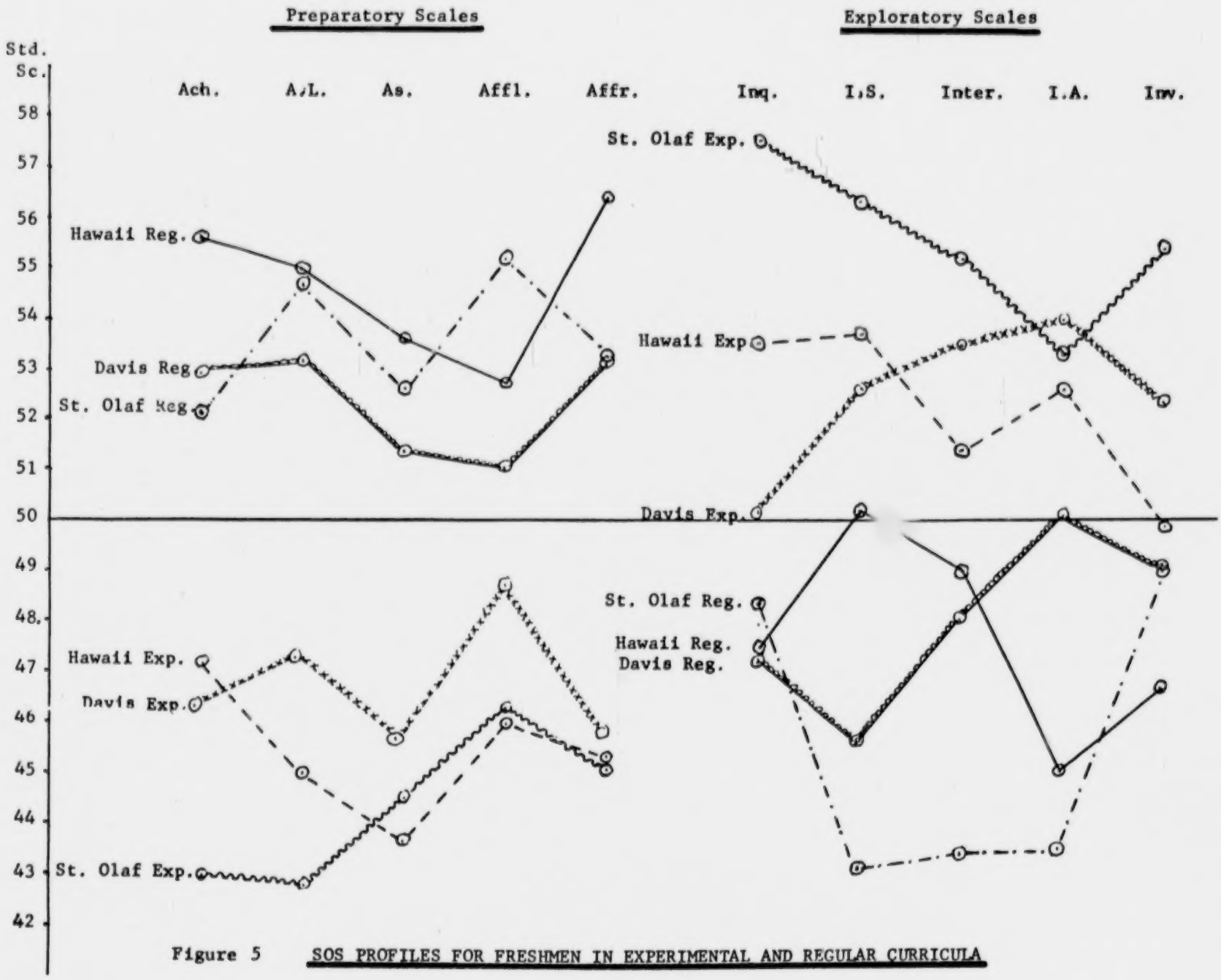

Figure 5 SOS PROFILES FOR FRESHMEN IN EXPERIMENTAL AND REGULAR CURRICULA

lower than their peers on the Preparatory SOS scales. There were also substantial differences on certain scales when students in the two experimental programs and students in the two traditional curricula were compared on an inter-institutional basis.

For example, freshmen in the experimental ParaCollege program at St. Olaf's College had significantly higher scores on four of five Exploratory scales of the SOS when compared with students in the New College experimental program at the University of Hawaii. In addition, freshmen in the regular academic curriculum at St. Olaf's College had lower mean scores on the Achievement, Affirmation, Independent Study, and Interaction scales when compared with their counterparts in the regular freshman year program at Hawaii. That there would be variation of this sort is not surprising, as these institutions are quite dissimilar with respect to size, orientation, and admissions policies.

Another analysis which generally relates to the validity question resulted from a longitudinal study at the University of California, Davis of those freshmen in the experimental and regular curriculum mentioned above.[7] Using seven scales of the SOS, an analysis of the fall-spring changes for students in the two curricula was performed.

With regard to fall-spring changes, (analyzed via correlated sample t-test procedures), EFP freshmen had significant mean score change on all SOS scales (except Involvement), while freshmen in the regular curriculum had significant SOS mean score changes on only two scales (an increase on the Interaction scale and a decrease on the Affiliation scale). Although the freshmen in the regular curriculum had significant change on the latter two scales, the relative degree of change was still much greater for the EFP students. (See Norm section of the Manual).

[7]For a description of the Experimental Freshman Program (EFP) at UC, Davis, see Morstain (1972).

In sum, using the SOS in this longitudinal study showed that the EFP students, compared with their peers in the regular UC Davis curriculum:

a. decreased their desire for traditional lectures and formalized education (Assignment Learning-- $p < .01$)

b. expressed a higher interest in self-directed study and research projects. (Independent Study -- $p < .001$)

c. desired a more significant role in educational decision-making. (Interaction -- $p < .001$)

d. placed less emphasis on grades and formalized evaluation by faculty. (Assessment -- $p < .001$)

f. became less interested in relating to peers through traditional extra-curricular clubs and groups. (Affiliation -- $p < .001$)

g. saw education more as a way of exploring various academic areas rather than solely preparing for a vocational future. (Achievement -- $p < .01$)

As discussed in a paper which presented the results of the entire UC Davis longitudinal study[8], the Experimental Freshman Year Program -- possibly with a contributing "Hawthorne" effect -- had an impact on the educational attitudes of its freshman participants. With the added context of student responses in interview sessions, the SOS appeared to be an important aid in documenting the overall direction and extent of these changes in students' educational attitudes.

Summary

At the present time, evidence of validity for the SOS has been derived from several studies. As was hypothesized, students' educational orientations and attitudes regarding curricular-instructional patterns and policies were found to be related to

[8]Morstain, B. "Changes in Students' Educational Attitudes: A Study of an Experimental Living-Learning Program" -to be published in Research in Higher Education. (copies available from author).

selected personality characteristics. It was also determined that students who endorse various Clark-Trow philosophies have widely differing educational attitudes, thus supporting earlier research by Peterson (1965). In a study at the Univ. of Delaware, Pemberton (1973) found that students with differnt patterns of Scholastic Aptitude Test scores had significantly different educational attitudes and orientations as demonstrated by SOS-SAT analyses.

As data presented in Figures 3 and 4 indicated, students in various institutional and curricular settings had markedly different SOS profiles. Also, the SOS appeared to reflect different educational orientations of students in experimental and regular academic programs, and these findings were generally consistent with previous research undertaken by Heist and Bilorusky (1970) and Suzcek and Alfert (1970). At one institution, the SOS was also reflective of fall-to-spring changes in student attitudes when used in a longitudinal study design, and the interpretation of changes as evidenced by SOS findings was supported by other indices of student change and development (Morstain, 1971).

Suggested Uses

The Student Orientations Survey has potential use in a variety of research modes, both in a descriptive and experimental context. The section on Validity reviewed several research studies: a) analyzing the relationship between students' educational attitudes and their personality characteristics; b) exploring the relationship of measures of aptitude (i.e., SAT scores) and students' educational attitudes; c) investigating the similarity and dissimilarity of attitudes of students in different curricular programs -- at the same institution or across institutions; d) researching the question of educational "impact" through longitudinal designs.

Additional uses of the SOS are possible, and other research questions can be developed. The following list is illustrative and not exhaustive of other possibilities:

-What is the relationship between students' educational attitudes and their pattern of academic achievement? (as evidenced by students' grade-point averages and/or their performance on standardized measures, i.e., GRE exams, Field and Area tests of the Undergraduate Program developed by ETS, and so on.

-What are the educational and curricular/instructional attitudes of students who withdraw from a college or univeristy?

-In a similar context, what are the attitudes of students who change majors or degree programs?

-What patterns of educational attitudes are generated when students are classified in various ways? (i.e., by their family background, by place of residence (on campus, commuting, apartment off-campus); by full or part-time status, and so on).

The SOS could conceivably be used in more experimental considerations as well.

-Much discussion has centered at times on the issue of "best fit" between students and faculty -- in effect, a variation of the congruence/incongruence question. What perceptions do faculty have regarding "desirable" student orientations and attitudes? What is the degree of congruence or incongruence between students and faculty (either in one class, one department, or the institution as a whole), and what bearing does this have on patterns of student growth in both the intellectural and non-cognitive domains? This type of research may have implications for attempts to empirically validate hypotheses generated by the "challenge and response" discussion (Sanford, 1967).

-From this theoretical perspective, gaining a better overview of student attitudes is only one side of the picture. Hence, a "Faculty Orientations Survey" has been recently developed in order to provide a means of assessing a faculty member's educational attitudes and teaching orientations. The items in this new inventory, with appropriate changes, correspond quite closely to items found in the SOS. In a study which was initiated in April 1973, researchers are exploring the degree of student-faculty congruence in educational attitudes and what relationship a "disparity" factor has with respect to how students evaluate their courses and instructors. The hypothesis under consideration is that the higher the degree of student-faculty attitude incongruence, a student's course/instructor ratings will be relatively lower as compared with the ratings of students in a "high congruence" situation. In sum,

this research has evolved from that of simply describing the educational attitudes of students to focusing on the attitudes of students and faculty. Hopefully, a better understanding of teacher-student relationship and various learning processes will result from these efforts.

-The SOS could be helpful in an admissions choice context. If an SOS profile for the institution (along with other data) were made available to applicants, these individuals might obtain a better overview of the characteristics of the student body at a given college or university they are considering. Conversely, if applicants to an institution or particular program took the SOS, faculty and admissions officers might be in a better position to assess the "mix" of students thought to be desirable for that particular institution or program.[9]

[9] Regarding the general consideration of "selection", the University of Delaware will have an experimental modular semester program starting in the fall of 1973. SOS data on nearly 70% of last year's sophomore class is available, and individuals who had scores of one standard deviation or more above the U of D mean on each of three Exploratory scales (Independent Study, Inquiry, Interaction) have received a letter inviting them to consider the special features of the new Integrated Learning Semester option.

Administering the SOS

Availability

The SOS inventory is currently available in a six-page questionnaire, laid out for ease in student response and for keypunching purposes. Eventually the SOS will be available in a separate booklet (re-usable) and answer sheet format. A student can normally complete the questionnaire in approximately 15 minutes.

The SOS is available for research purposes and general use in the field of higher education. All inquiries should be directed to this author at the following address:

Office of Academic Planning and Evaluation
University of Delaware
Newark, Delaware 19711

Scoring

An individual's raw scale score is the sum of each of the 8 item values he has marked. Hence, these scores can range from 0 to 24. For certain items, disagreement with the statement contributes towards the scale score. Items on which the weights have to be reversed before inclusion in the score are marked (R) in Appendix A. No scale score is computed for individuals who omit three or more items. For individuals who omit only one or two items, the mean score from the items responded to is entered as the score for the missing items.

Costs

A nominal charge is made for copies of the SOS inventory, for keypunching and scoring the completed inventories, and for computer reports, profiles, and data decks for one's own use. The following charge covers the costs incurred in providing the respective services to those engaged in research:

SOS inventory, scoring, and computer report (two copies of total group analysis)	$.50 per individual*
Manual	$2.50

The per individual charge also includes costs involved in mailing inventories and computer reports, as well as a computer card deck generated from the data base. This deck will be helpful in performing other analyses of the data at one's own institution. The information provided by the data deck (two sequenced cards/individual) includes:

- -student ID and other background data from the General Information section of the SOS
- -responses to all items of the SOS for each individual
- -ten SOS scale scores for each individual
- -documentation of the data deck

Reporting Format and Optional Analyses

Computer reports (2 copies) of the SOS results for the total group of respondents is provided as part of the per individual charge. The computer report presents the raw score means and standard deviations for each of the ten SOS scales. A separate printout presents the student responses to each of the 80 SOS items (frequencies and percentages are reported).

Other comparative group analyses are available based on the questions listed in the General Information section of the inventory, and/or by student responses to two additional questions developed for your particular needs. There is a charge of $5.00 for each comparative group analysis computer report.

*Minimum charge of $30.00

Special Notes

a) Student Identification Code:

Columns 1 through 5 are reserved for an identification number unique to each student (repeated on the second data card). When the SOS becomes available in booklet/answer sheet form, identification numbers will also be pre-stamped on each student answer sheet.

b) College/university code:

A unique code will be assigned to each institution which uses the SOS.

c) Additional Questions:

It is possible to develop two additional demographic or background questions, especially if one wishes to perform other comparative group analyses. (For example, part-time or full-time status of the student, father's educational background, grade-point average, etc.). Put these questions on a separate sheet, and instruct students to enter the numeric response in the blanks alongside (14) and (15). Categories of response can range from 1 through 9 for each question.

d) Return Time

Please allow between two to three weeks for processing, scoring, and return delivery of SOS reports and data decks.

Norms

Normative data for aid in the interpretation of SOS results and for institutional/curriculum comparisons are found in various tables in this section. SOS results are reported in raw scale score means, the range being 0 to 24. In order to make more meaningful group and/or inter-institutional comparisons, raw scores should be transformed to a standard score format. Normative data from the five-institution study have been pooled, and a raw score -standard score conversion table is presented in Table 3. Raw scores have been linearly transformed to a standard scale score format (M=50, S.D. =10). As the normative data base is expanded, the raw score-standard score conversion information will be up-dated.

Using the raw scale score means found in the SOS computer report, find the equivalent standard score for <u>each</u> SOS scale. Standard score means on the ten SOS scales for one's institution (or for other sub-groups) can now be directly compared with various reference group data provided in this section. Standard score means, standard deviations, and F values (from analyses of variance) are presented for various groups in the following tables:

Table 4 -- SOS Means and Standard Deviations for Students Endorsing Various Clark-Trow Philosophies

Table 5 -- SOS Means and Standard Deviations for Students with SAT-M Scores One S.D. above SAT-V, SAT M and V Not Differing by More than One S.D., and with SAT-V One S.D. Above SAT-M

Table 6 -- SOS Means and Standard Deviations for Students in at Five Institutions

Table 7 -- SOS Means and Standard Deviations for Students in Five Different Curricula

Table 8 -- SOS Means and Standard Deviations for Freshmen in Experimental and Regular Academic Programs

Table 9 -- SOS Means and Standard Deviations for Students with Different Educational Aspirations.

Table 10 - Longitudinal Changes in SOS Means for Freshmen in the Regular Curriculum and in the Experimental Freshman Program (EFP)

Table 3

SOS RAW SCORE - STANDARD SCORE CONVERSIONS[1]

Raw Score	Standard Score										Raw Score
	Achievement	Assmt. Lrng.	Assess.	Affiliation	Affirmation	Inquiry	Indep. Study	Interaction	Inf. Assoc.	Involvement	
0	17.6	12.7	28.4	22.9	24.7	12.5	16.8	14.4	14.5	16.0	0
1	19.9	15.2	30.6	24.9	27.0	15.0	19.0	16.7	17.2	18.2	1
2	22.2	17.7	32.8	26.9	29.4	17.4	21.3	19.0	19.8	20.5	2
3	24.5	20.2	35.0	28.9	31.8	19.8	23.6	21.4	22.4	22.8	3
4	26.8	22.7	37.2	30.9	34.1	22.3	25.8	23.7	25.1	25.0	4
5	29.2	25.2	39.4	32.9	36.5	24.7	28.1	26.0	27.7	27.3	5
6	31.5	27.7	41.6	34.8	38.9	27.1	30.4	28.3	30.3	29.5	6
7	33.8	30.2	43.8	36.8	41.2	29.6	32.6	30.6	33.0	31.8	7
8	36.1	32.6	46.0	38.8	43.6	32.0	34.9	33.0	35.6	34.0	8
9	38.4	35.1	48.2	40.8	46.0	34.4	37.2	35.3	38.2	36.3	9
10	40.8	37.6	50.4	42.8	48.3	36.9	39.4	37.6	40.9	38.5	10
11	43.1	40.1	52.6	44.8	50.7	39.3	41.7	39.9	43.5	40.8	11
12	45.4	42.6	54.8	46.8	53.1	41.7	44.0	42.2	46.1	43.0	12
13	47.7	45.1	57.0	48.8	55.4	44.2	46.2	44.6	48.7	45.3	13
14	50.0	47.6	59.1	50.8	57.8	46.6	48.5	46.9	51.4	47.5	14
15	52.4	50.1	61.3	52.8	60.1	49.0	50.8	49.2	54.0	49.8	15
16	54.7	52.6	63.5	54.8	62.5	51.5	53.0	51.5	56.6	52.0	16
17	57.0	55.1	65.7	56.8	64.9	53.9	55.3	53.8	59.3	54.3	17
18	59.3	57.6	67.9	58.8	67.2	56.3	57.6	56.2	61.9	56.5	18
19	61.6	60.1	70.1	60.7	69.6	58.8	59.8	58.5	64.5	58.8	19
20	64.0	62.6	72.3	62.7	72.0	61.2	62.1	60.8	67.2	61.0	20
21	66.3	65.1	74.5	64.7	74.3	63.6	64.4	63.1	69.8	63.3	21
22	68.6	67.6	76.7	66.7	76.7	66.1	66.7	65.4	72.4	65.5	22
23	70.9	70.1	78.9	68.7	79.1	68.5	68.9	67.8	75.1	67.8	23
24	73.2	72.5	81.1	70.7	81.4	70.9	71.2	70.1	77.7	70.0	24
Raw Sc. M	13.98	14.96	9.83	13.61	10.71	15.40	14.66	15.35	13.48	15.10	M
Raw Sc. S.D.	4.31	4.01	4.56	5.02	4.23	4.11	4.41	4.31	3.80	4.44	S.D.

[1]Based on data from five institutions--Concordia College, Harcum Junior College, Muhlenberg College, Steubenville College, University of Delaware (N=3838). Raw score means have been standardized to 50, standard deviation of 10.

Table 4

SOS MEANS AND STANDARD DEVIATIONS FOR STUDENTS ENDORSING VARIOUS CLARK-TROW PHILOSOPHIES [1]

Scale	Vocational M (N=33)	Vocational S.D.	Collegiate M (N=114)	Collegiate S.D.	Academic M (N=48)	Academic S.D.	Non-Conformist M (N=60)	Non-Conformist S.D.	Analysis of Var. F	Analysis of Var. p <
Preparatory										
Achievement	52.4	9.8	50.8	8.2	50.0	9.6	45.2	11.4	5.95	.01
Assignment Lrng.	51.4	8.7	53.1	7.9	48.5	9.7	45.6	10.8	9.54	.01
Assessment	49.2	8.9	50.9	9.4	46.7	10.1	46.6	9.5	3.79	.05
Affiliation	49.6	7.8	54.1	8.7	47.1	9.8	47.0	10.2	11.08	.01
Affirmation	54.0	11.2	51.7	8.8	47.4	9.4	46.4	10.6	6.84	.01
Exploratory										
Inquiry	45.1	9.6	48.8	8.9	50.1	10.5	53.0	9.6	5.37	.01
Independent Stdy	44.3	11.7	47.6	9.8	49.7	9.8	52.8	9.8	6.01	.01
Interaction	47.7	10.2	47.8	9.4	51.2	11.2	53.9	9.3	5.72	.01
Informal Assoc.	46.9	9.5	48.9	9.7	50.8	9.6	55.8	9.3	8.78	.01
Involvement	47.5	10.3	50.2	9.5	51.8	11.0	53.0	9.8	2.49	n.s.

[1] Freshmen from the University of California at Davis and St. Olaf's College (N=255)

Table 5

SOS MEANS AND STANDARD DEVIATIONS FOR STUDENTS WITH SAT-M SCORES ONE S.D. ABOVE SAT-V, SAT-M AND V NOT DIFFERING BY MORE THAN ONE S.D., AND WITH SAT-V ONE S.D. ABOVE SAT-M[1]

Scale	V>M (N=228) M	S.D.	V=M (N=1603) M	S.D.	V<M (N=393) M	S.D.	Analysis of Var. F	p
Preparatory								
Achievement	47.4	10.5	49.6	9.9	50.1	9.5	5.75	.01
Assignment Lrng.	45.9	10.8	49.1	10.0	49.6	9.2	11.55	.01
Assessment	46.8	9.3	48.7	9.7	49.2	9.8	5.02	.01
Affiliation	44.9	9.7	48.2	9.7	49.1	9.8	13.99	.01
Affirmation	45.7	10.4	48.5	9.7	49.9	9.8	13.27	.01
Exploratory								
Inquiry	54.1	10.2	50.3	10.0	47.4	9.8	32.10	.01
Independent Stdy	53.0	10.1	50.1	10.1	48.8	10.2	12.24	.01
Interaction	53.9	9.7	50.9	9.9	48.7	10.0	19.65	.01
Informal Assoc.	54.4	10.1	51.4	9.4	50.2	9.0	14.56	.01
Involvement	51.7	10.5	49.7	9.9	46.8	10.3	20.67	.01

[1]University of Delaware undergraduates (N=2224)

Table 6

SOS MEANS AND STANDARD DEVIATIONS FOR STUDENTS
AT FIVE INSTITUTIONS

Scale	Concordia M (N=718)	Concordia S.D.	Delaware M (N=2446)	Delaware S.D.	Harcum J.C. M (N=92)	Harcum J.C. S.D.	Muhlenberg M (N=425)	Muhlenberg S.D.	Steubenville M (N=157)	Steubenville S.D.	Analysis of Var. F	Analysis of Var. p <
Preparatory												
Achievement	52.1	9.1	49.7	9.9	54.2	9.6	45.8	10.2	55.1	9.2	44.4	.01
Assignment Lrng.	52.9	8.8	49.0	10.1	53.2	9.4	48.9	10.0	54.1	10.0	32.3	.01
Assessment	54.5	9.4	48.9	9.8	51.9	10.2	47.2	9.7	53.2	9.4	60.1	.01
Affiliation	55.5	8.5	48.0	9.8	49.9	10.1	50.7	9.1	54.9	10.5	98.0	.01
Affirmation	55.2	8.7	48.6	9.9	51.4	9.4	47.6	9.5	53.6	10.1	78.4	.01
Exploratory												
Inquiry	47.8	9.8	50.3	10.0	49.3	10.2	51.1	9.6	52.8	9.3	14.0	.01
Independent Stdy	49.1	9.5	50.1	10.1	51.0	10.4	51.0	10.0	49.7	9.8	2.9	.05
Interaction	48.6	8.4	50.4	10.2	50.8	10.6	50.5	10.9	49.7	9.8	5.0	.01
Informal Assoc.	46.6	9.8	51.4	9.5	48.3	11.3	49.8	10.0	45.5	11.1	42.3	.01
Involvement	50.5	9.3	49.3	10.1	51.7	9.7	52.0	9.8	52.7	10.2	12.2	.01

Table 7

SOS MEANS AND STANDARD DEVIATIONS FOR STUDENTS IN FIVE DIFFERENT CURRICULA[1]

Scale	Female Prof. (N=724) M	S.D.	Male Prof. (N=630) M	S.D.	Humanities (N=317) M	S.D.	Natural Sci. (N=433) M	S.D.	Social Sci. (N=317) M	S.D.	Analysis of Var. F	P <
Preparatory												
Achievement	51.8	9.1	52.1	9.1	45.9	10.4	48.6	9.7	46.3	10.0	45.7	.01
Assignment Lrng.	49.5	9.4	51.7	8.8	46.3	11.1	49.7	9.9	45.8	10.8	30.3	.01
Assessment	48.4	9.3	51.0	9.9	47.7	10.1	49.3	9.5	47.2	9.3	12.5	.01
Affiliation	49.2	9.5	50.0	9.6	44.0	10.0	47.6	9.0	46.1	9.9	27.2	.01
Affirmation	50.9	9.0	50.9	9.5	46.3	10.0	47.9	9.4	44.0	9.7	50.8	.01
Exploratory												
Inquiry	49.2	10.1	46.8	9.8	54.2	9.4	51.4	9.1	53.7	9.4	50.1	.01
Independent Stdy	49.8	10.1	47.1	9.5	53.4	9.9	49.9	9.7	52.5	10.2	30.0	.01
Interaction	51.8	9.7	46.8	10.0	52.7	10.5	49.5	9.8	52.0	10.1	31.6	.01
Informal Assoc.	49.9	9.1	50.0	8.7	55.4	10.4	51.8	9.3	52.6	9.8	24.4	.01
Involvement	49.6	9.4	45.7	9.9	50.3	10.1	48.0	10.0	54.2	9.5	51.3	.01

[1]University of Delaware undergraduates (N=2421)

Table 8

SOS MEANS AND STANDARD DEVIATIONS FOR FRESHMEN
IN EXPERIMENTAL AND REGULAR ACADEMIC PROGRAMS

Scale	Experimental						Regular						Analysis of Var.	
	Hawaii		Davis		St.Olaf		Hawaii		Davis		St.Olaf			
	M (N=82)	S.D.	M (N=95)	S.D.	M (N=25)	S.D.	M (N=68)	S.D.	M (N=89)	S.D.	M (N=50)	S.D.	F	p <
Preparatory														
Achievement	47.2	8.6	46.3	9.0	43.0	9.9	55.6	10.1	52.8	8.8	52.1	9.4	14.1	.01
Assignment Lrng.	45.0	9.8	47.3	9.3	42.8	9.8	55.0	9.1	53.1	7.7	54.7	8.7	18.4	.01
Assessment	43.7	8.9	45.7	8.3	44.5	9.8	53.6	10.0	51.3	9.4	52.6	9.6	14.8	.01
Affiliation	46.0	10.2	48.7	10.2	46.3	8.7	52.7	9.8	51.0	7.7	55.2	10.0	8.2	.01
Affirmation	45.3	8.4	45.8	9.6	45.1	9.1	56.4	8.5	53.2	8.9	53.3	8.9	20.4	.01
Exploratory														
Inquiry	53.5	10.2	50.2	8.8	57.5	7.6	47.5	10.0	47.3	9.9	48.4	9.5	7.8	.01
Independent Stdy	53.7	9.0	52.6	9.3	56.3	8.8	50.2	8.0	45.7	9.1	43.1	10.3	16.1	.01
Interaction	51.4	9.5	53.5	8.9	55.2	10.7	49.0	9.8	48.1	9.2	43.3	9.3	10.4	.01
Informal Assoc.	52.6	8.7	54.0	8.9	53.3	11.8	45.0	9.7	50.1	8.6	43.4	9.4	14.8	.01
Involvement	49.9	10.3	52.4	9.3	55.4	7.8	46.7	8.6	49.1	11.1	49.0	9.4	4.4	.01

Table 9

SOS MEANS AND STANDARD DEVIATIONS FOR STUDENTS WITH DIFFERENT EDUCATIONAL ASPIRATIONS[1]

Scale	Bachelor's (N=701) M	S.D.	Master's (N=1098) M	S.D.	Acad. Doc. (N=299) M	S.D.	Prof. Deg. (N=261) M	S.D.	Analysis of Var. F	p <
Preparatory										
Achievement	50.6	9.7	49.9	9.7	47.3	10.3	49.6	10.0	8.2	.01
Assignment Lrng.	50.8	9.4	48.9	9.9	45.4	10.5	49.2	10.6	20.6	.01
Assessment	49.4	9.6	48.8	9.7	47.9	10.0	49.5	10.0	2.2	n.s.
Affiliation	48.5	9.5	48.1	9.8	45.7	9.9	49.3	9.9	7.8	.01
Affirmation	51.3	9.5	48.6	9.6	44.4	9.7	46.7	9.8	39.3	.01
Exploratory										
Inquiry	46.6	9.7	50.9	9.4	55.6	9.4	52.6	9.8	72.0	.01
Independent Stdy	48.0	9.9	50.2	9.8	54.6	10.0	50.5	10.5	31.0	.01
Interaction	49.5	10.0	50.9	10.2	51.7	10.8	49.1	10.6	5.7	.01
Informal Assoc.	51.1	9.1	51.2	9.6	53.3	9.6	50.9	9.9	4.8	.01
Involvement	46.5	9.9	50.0	9.8	51.6	10.3	51.7	10.7	29.3	.01

[1]University of Delaware undergraduates (N=2359)

Table 10

LONGITUDINAL CHANGES IN SOS MEANS FOR FRESHMEN IN THE REGULAR CURRICULUM AND IN THE EXPERIMENTAL FRESHMAN PROGRAM (EFP)[1]

EFP Freshmen (N=95) Fall M	EFP Freshmen (N=95) Spring M	p< [2]	SOS Scale	Reg. Curric. Freshmen (N=89) Fall M	Reg. Curric. Freshmen (N=89) Spring M	p< [2]
48.6	46.2	.01	Assignment Lrng.	52.9	52.0	---
49.6	52.7	.001	Independent Study	45.8	46.0	---
49.9	55.4	.001	Interaction	46.8	50.0	.001
50.6	46.0	.001	Assessment	53.5	51.4	.05
48.4	45.5	.01	Achievement	53.2	51.7	---
52.4	46.7	.001	Affiliation	53.8	50.0	.001
52.1	52.1	--	Involvement	48.2	49.0	---

[1] University of California, Davis

[2] Correlated sample *t* test used to assess significance of difference in longitudinal changes

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Appendix A

Scale Descriptions, Component Items, Item-Scale Score Correlations*
(Form D)

Achievement

This scale seeks to measure the degree to which a student is oriented toward (1) the achievement of a priori goals (usually some career in particular or success in general), (2) the acquisition of specific skills or credentials, (3) the satisfaction of receiving external rewards. The student who identifies with the contents of these items has a practical, goal-oriented outlook and tends to gauge various aspects of the college experience in terms of their future usefulness.

Item No.	Item	Item-Scale Score Corr.
1/47	More college courses should be geared to kind of job a student wants after college.	.603
1/17	I am primarily interested in a specialized area of learning that relates directly to my intended career.	.595
1/27	There is nothing like the mastery of particular skills in college to assure one of a rewarding career.	.594
1/67	A high grade point average and a fine record of a accomplishments are worth the necessary hard work.	.573
1/77	Learning to make a good living is sufficient reason for going to college.	.559
1/37	Obtaining a degree is one of my least important reasons for going to college.(R)	.530
1/57	By deciding early on a major in college, I can concentrate on taking the courses I need to complete the requirements.	.517
2/13	One should study as much as possible in order to learn a great deal about his major or career field.	.510

NOTE:
The SOS questionnaire is currently available in a card image format for ease in keypunching. Item numbers refer to the card/column number as shown on Form D of the SOS inventory. Items with an (R) designation are reversed when scored. Item-scale score correlations were derived from analyses of responses of 2468 University of Delaware undergraduates.

Assignment Learning

The student who agrees with a high proportion of the items on this scale reports that he learns best by meeting specific, clear-cut, formal requirements. His mode of learning is linear, i.e., he likes to master specified blocks or units of knowledge sequentially.

Item No.	Item	Item-Scale Score Corr.
1/66	An academic program is best organized into formal courses, with regular class assignments and examinations.	.668
2/12	The best way to learn something is to complete course assignments and do the required reading.	.663
1/76	I do my best work when I know what I am supposed to do.	.639
1/16	I learn best when the instructor's lecture closely follows the assigned readings.	.638
1/46	I like courses in which my teachers give explicit instructions.	.635
1/26	I learn best when a subject is presented in a neat, orderly sequence.	.615
1/36	Lectures are the best way to learn because they pinpoint what is important for students to know.	.584
1/56	College students need a lot of academic guidance so they get started on the right foot.	.516

Assessment

An evaluation by those in authority seems to be quite important to the student who scores high on this scale. Grades and examinations are valued by this student because they provide not only some measure of his abilities but some incentive for using those abilities.

Item No.	Item	Item-Scale Score Corr.
1/68	Without grades, I would find it difficult to assess my intellectual abilities.	.692
1/38	Grades are helpful because they let you know where you stand.	.689
1/48	In the ideal college or university, there would be no grades. (R)	.679
1/18	I prefer graded courses to pass/fail courses.	.677
1/78	A student's grade is a pretty good indicator of what he has gotten out of a course.	.670
1/28	Teachers are the only ones who should critically judge a student's work.	.479
1/58	Final examinations are not a very adequate measure of the learning which has taken place in a course. (R)	.451
2/14	If there weren't any pressure on me to get good grades, I might slack off in my academic courses.	.440

Affiliation

The student who prefers the manner of relating expressed in items on this scale enjoys belonging to organized extracurricular groups. He appears to value the assurance of friendships such affiliation provides. Furthermore, he stresses the importance of maintaining strong institutional loyalty and support.

Item No.	Item	Item-Scale Score Corr.
1/62	Extra-curricular activities such as clubs, interest groups, etc., are an important aspect of college for me.	.718
1/22	Fraternities, sororities, and other social groups are an important part of college life.	.714
1/42	I think college activities and groups do a lot to help students develop more school spirit and loyalty.	.711
1/32	Students who participate in campus organizations and social groups usually have lots of friends and really make the most of their college years.	.687
2/8	Belonging to an organization makes it much easier to meet people.	.658
1/52	Joining campus groups can be quite useful in terms of a future career.	.656
2/18	Intercollegiate athletics are becoming an unimportant and irrelevant aspect of college life. (R)	.538
1/72	Active alumni generally render a great service to a college or university.	.517

Affirmation

The student who agrees with items on this scale appears to affirm the values of a peaceful and orderly society. He tends to support public officials in their commitment to solve civic problems and feels "the majority can be counted on to make the right decisions." He would probably counsel care and caution in the area of social change.

Item No.	Item	Item-Scale Score Corr.
2/19	Most of our public agencies are responsive to the needs of its citizenry.	.646
1/23	Most of our public officials are committed to resolving the basic issues facing us today.	.637
1/53	I think all the talk about the "problems of our society" is blown out of proportion.	.618
1/43	Campus protests are self-defeating because they give the college or university a bad name.	.615
1/33	I'd prefer to maintain a fairly neutral position on controversial issues and keep a "clean" record.	.586
1/73	In a democratic society, the majority can usually be counted on to make the right decisions.	.585
2/9	The society that tries to change too fast is headed for real trouble.	.579
1/63	Generally, the police in this community are doing a good job and deserve student support.	.547

Inquiry

"Learning is its own reward", in essence, is the expressed motivation of the student who responds positively to most of the items on this scale. He concurs with statements which stress the value of insight, the perception of relationships, and knowing how to learn. He expresses curiosity about many things and appears to enjoy the satisfaction of inquiry whether or not it brings with it any other reward.

Item No.	Item	Item-Scale Score Corr.
2/16	I like to study a given theory or new "discovery" and consider what implications it may have for the future.	.677
1/70	I like to discuss various philosophical and theoretical issues with faculty and other students.	.667
1/50	I consider many viewpoints on a given topic and think about what if anything they all have in common.	.656
1/20	I spend a lot of time just thinking about how things I have learned go together.	.652
2/6	I enjoy starting with a topic and digging into every conceivable phase or aspect of that topic.	.632
1/30	When I come across a subject that's interesting to me, I frequently follow it up at great length.	.558
1/40	I would like to study the relationships between several fields rather than learning many facts about just one area.	.544
1/60	The main reason I am in college is not so much to learn useful information as to acquire insight into the nature of things.	.533

Independent Study

The items on this scale help to identify the student who works best on his own. He prefers informal, unstructured courses in which he can set his own goals and standards and pursue his own interests. He appears to place a high value on freedom and independence.

Item No.	Item	Item-Scale Score Corr.
1/49	An academic program is best carried out through an an independent study program with some faculty supervision.	.733
1/19	Instead of taking a regular course, I would rather have an individually tailored "learning contract" with a faculty member.	.697
1/59	I prefer classroom assignments where topics and approach, etc., are left up to me.	.691
1/29	I like courses in which I can do independent projects and original research.	.670
2/15	I would like to have an independent study experience which would involve off-campus study.	.638
1/69	Assignments usually do not give me enough freedom and I would prefer that they be less structured.	.619
1/79	The teacher who wants students to do their best should allow them to pursue their own interests.	.603
1/39	Often I learn more from studying along my own lines than through completing required material.	.583

Interaction

An egalitarian attitude toward faculty members characterizes the student with a high score on this scale. This individual sees students as fully competent to share educational decision-making with faculty. In this connection he expresses the belief that students should participate with faculty in planning courses and academic programs.

Item No.	Item	Item-Scale Score Corr.
2/17	Students should be involved with faculty in establishing degree and graduation requirements.	.716
2/7	Students have the interest and ability to plan undergraduate programs in cooperation with faculty.	.711
1/61	Students should participate significantly in determining the nature and format of their academic program.	.703
1/21	Teachers and students should be equals in designing courses.	.701
1/41	The faculty should determine how courses are to be organized. (R)	.688
1/51	Students should be encouraged to propose and develop courses and receive academic credit for them.	.675
1/31	Faculty should decide what subjects are important for students to know. (R)	.663
1/71	There is a body of knowledge to be learned, and the faculty is more competent than the student to direct the student's course of study. (R)	.657

Informal Association

Spontaneity marks the pattern of peer-relationships expressed by the student who responds favorably to this cluster of items. He expresses little need for affiliation with organized groups or for participation in formal, well-planned events. His association with fellow-students also tends to be unstructured.

Item No.	Item	Item-Scale Score Corr.
1/54	I do not especially care for formal dinners, formal dances and other such occasions.	.608
1/24	I would rather spend an evening with a friend or two than attend a planned social event.	.532
1/74	Most college groups tend to be too structured for me.	.531
1/44	I prefer an event that just happens to one which is planned.	.524
2/20	Organized groups tend to get in the way of spontaneous friendships.	.517
2/10	Careful planning is extremely important to the success of a social event.(R)	.510
1/34	I seldom attend the meetings of campus organizations.	.446
1/64	Large scale campus events are usually quite impersonal.	.425

Involvement

A strong interest in social and political affairs characterizes the student who has a high score on this scale. He sees students as having a rightful place in dealing with the public problems of our time. Further, he expresses a concern for the welfare of others and states his readiness to take a stand on public issues.

Item No.	Item	Item-Scale Score Corr.
1/75	I would support and participate in a student lobby group which works for socio-political change off-campus.	.719
1/65	I am not especially interested in hearing political speakers who come to the campus.(R)	.678
2/11	I am very interested in issues of a social or political nature.	.671
1/25	College students should become meaningfully involved in correcting the injustices of our society.	.637
1/45	Students should postpone any effort to reform society until after they graduate from college.(R)	.610
1/35	College students who get involved in social and political matters could put that time to better use. (R)	.561
2/21	During college I expect to participate in some form of volunteer service.	.540
1/55	Realistically, students can do little to bring about changes in our society.(R)	.539